
Appendix A: **Notes on Data Collection**

NOTES ON DATA COLLECTION

This first compendium of key data on the state of the Bay Area transportation system is intended to provide the best snapshot possible, given existing information collected by Bay Area transportation agencies. Because the data have been gathered by multiple sources, responding to varying requirements, differences exist with respect to methodology, frequency, time period covered, level of detail and other variables. Following are some general comments, plus specific discussions of data by category.

Time Period Covered

Most data is collected and reported by *calendar year* (January 1 to December 31). Transit data is collected and reported by *state fiscal year* (July 1 to June 30), as is the custom for accounting purposes. Truck counts on freeways and state highways are collected by *federal fiscal year* (October 1 to September 30) because federal roadway funding is based, in part, on traffic counts.

Every effort was made to assemble consistent data for 1997 through 2001 (or, for data collected by fiscal year, 1996-97 through 2000-01). In some cases, this simply was not possible because data was not collected or analyzed for some years. For example, local roadway pavement conditions were available for 1998 and 2001 only; the latest truck counts available at the time of publication were for 2000.

Future Data Collection

In the future, the authors expect to collect supplemental data to fill gaps in the existing data. For example, traffic volumes on local roadways are not included in this report. While individual cities and counties collect traffic counts for various purposes, there is little consistency among jurisdictions in the timing or location of data collection. As a result, it is extremely difficult to aggregate the data and summarize it at the regional level. MTC intends to collect traffic volumes on a selected set of local roadways for inclusion in future reports.

Additionally, emerging technologies promise to make more complete data available in the future. Some of the techniques used to gather data for this report are extremely labor-intensive, and therefore costly. For example, Caltrans employees drive specially equipped vehicles to collect data on freeway congestion, and transit operators hire people to wait at bus terminals to record on-time performance. Often, agencies can afford to collect data just a few, “typical” days a year due to the high costs of these manual data collection methods.

Examples of emerging data collection technologies that are expected to improve data in future reports include the following.

- Sensors in the freeway pavement and on the roadside will continuously count vehicles and monitor travel speeds on freeways. Whereas traffic counts now are taken just a few days a year, this automated data would be available for a given location 24 hours a day, 365 days a year, giving us a much more accurate understanding of roadway conditions. This information will be sent to Caltrans’ Traffic Management Center, in Oakland, where it will be used to manage freeway traffic flow, provided to travelers seeking information on the system, and archived for use in reports such as this one.
- Additional sensors will use FasTrak™ electronic toll tags installed in autos and trucks to monitor the time it takes vehicles to travel between fixed points on the freeway, 24 hours a day, 365 days a year.
- “Smart” traffic signal systems will continuously count vehicles on local roadways. These systems will be deployed on only a small subset of streets in the near future, however, so most traffic counts on local roadways will continue to be done by traditional methods.
- Transit fleet management systems will track the times that buses and trains arrive and depart transit stops. By comparing these times to transit schedules, the systems will generate more complete on-time performance statistics.

Data Collection Techniques Used for This Report

Mobility: Getting Around the Bay Area

Freeway Congestion (pages 8-11)

The measure used to indicate congestion is daily vehicle hours of delay. Delay occurs when the average speed falls below 35 miles per hour for 15 minutes or more. Caltrans District 4 has collected this data every year since 1981 (except for 1985 and 1997, when budget limitations forced the district to forgo the program). Caltrans employees drive specially equipped vehicles on the freeway system during morning and evening commute hours to collect information on average travel speeds and travel times, which is then used to calculate daily delay. Data is collected on Tuesdays, Wednesdays and Thursdays during the spring and fall of each year. Complete freeway congestion data for the Bay Area is published by Caltrans in the report series *Bay Area Freeway Congestion Data*.

Selected Freeway Commute Times (pages 12-13)

It is possible to calculate the driving time between two locations from the data Caltrans District 4 collects to monitor freeway congestion (see above). Because data is available for freeway travel only, the reported commute times do not account for the time it takes to drive from one's home to the freeway or from the freeway to one's workplace. The driving times included in this report were calculated based on an 8:30 a.m. arrival at the destination city.

Freeway Traffic Volumes (pages 14-15)

The annual average daily traffic volume is the number of vehicles that pass by a given freeway location during the course of a year, divided by 365. The traffic volumes included in this report are for locations with permanent count stations. Only a small number of locations have permanent counters that provide data on a continuous basis from year to year. Caltrans collects traffic counts at other freeway and state highway locations with electronic instruments that are moved from location to location throughout the state on a seven-year cycle. Locations with these cyclic traffic counts were omitted from this report because the data does not show year-to-year trends. The complete database of traffic volumes throughout the state is available on the Caltrans Web site at www.dot.ca.gov/hq/traffops/saferesr/trafdata/.

Bridge Traffic Volumes (page 14)

The Bay Area Toll Authority, which has administered the first dollar of the \$2 toll on state-owned bridges since 1998, tracks the number of vehicles crossing each of the seven state-owned bridges. Traffic counts reflect vehicle crossings in the tolled direction for accounting purposes. The Golden Gate Bridge, Highway and Transportation District tracks this number for the Golden Gate Bridge. The average daily traffic for each bridge is the total annual traffic divided by 365 days. Due to time limitations, this data was assembled for 1999 through 2001 only. Data on traffic and revenue for the seven state-owned bridges is available on the Bay Area Toll Authority Web site at www.mtc.ca.gov/bata/tolls.htm. Data on traffic and revenue for the Golden Gate Bridge is available on the Web at www.goldengatebridge.org/research/GGBTraffToll.html.

Truck Traffic (pages 16-17)

Annual average daily truck traffic is the total number of trucks that pass by a given location in a year, divided by 365 days. Annual average truck volumes are calculated for the federal fiscal year, which runs from October 1 to September 30. Caltrans conducts truck counting throughout the state in a program of continuous sampling on a six-year cycle. Certain locations with truck weigh stations, including one Bay Area location, are monitored continuously. At the time of this report, data for fiscal year 1999-2000 was the most current data available. The most current data on truck volumes throughout the state is available on the Caltrans Web site at www.dot.ca.gov/hq/traffops/saferesr/trafdata/. This information also is published annually by Caltrans in the report series *Annual Average Daily Truck Traffic on the California State Highway System*.

Carpool Lanes — Time Savings and Usage (pages 18-21)

Caltrans District 4 collects data on carpool lane usage and travel-time savings annually. Data on lane usage is compiled from direct observations by people situated on the side of the freeway adjacent to the carpool lanes. Travel-time savings are computed by comparing travel time in the carpool lane with that in the adjacent mixed-flow lanes during the peak morning and evening commute hours. For carpool lanes that are not congested, travel time is based on the speed limit on the freeway. For carpool lanes that are congested, Caltrans drives specially equipped “floating cars” to record travel time and speed. The same “floating car” technique is used to measure the travel time in adjacent mixed-flow lanes. Caltrans District 4 publishes a report annually with complete data

Notes on Data Collection (continued)

on carpool lane usage and travel-time savings. The report also includes detailed information on the hours of operation, number of people using the carpool lane compared to adjacent general purpose lanes, and violation rates.

Local Traffic (pages 22-23)

Under state law, county congestion management agencies are charged with monitoring congestion on local roadways. Two Bay Area counties, Sonoma County and Napa County, have exercised an option in the law to opt out of this requirement. The remaining seven counties monitor congestion on local roadways and publish the results at least every two years in a county congestion monitoring report. Most counties report in odd years; however, Alameda and Contra Costa county report in even years. Thus, the most recent data available for those counties was for 2000 rather than 2001.

The congestion management agencies measure local roadway congestion by calculating the “level of service” on a selected set of high priority roads during peak commute periods. Level of service describes traffic conditions based on speed and travel time, volume and capacity, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. Level of service is expressed in grades from A through F, with level of service A representing the best operating conditions and level of service F the worst. At level of service A, B and C, traffic flow is stable and delay is minimal. This report characterizes these conditions as “uncongested.” At level of service D and E, traffic flow becomes unstable, conditions characterized in this report as “moderately congested.” At level of service F, traffic is stop and go, characterized in this report as “severely congested.”

The level of service grade is assigned based on the delay experienced by vehicles traveling through major intersections or on average travel speeds over selected segments of local roadways. It is noteworthy that the procedures for monitoring local roadway level of service are established on a county-by-county basis. As a result, it is more appropriate to compare the results for each county from year to year than it is to compare results across different counties. Links to congestion management agencies for counties in the Bay Area may be found on the MTC Web site at www.mtc.ca.gov/links/lkindex.htm.

Transit On-Time Performance (pages 24-25)

Transit operators monitor on-time performance as a measure of the quality of the service they provide. Like most data on transit operations, on-time performance is reported by fiscal year. Data

is usually collected by persons who record the arrival time of individual transit vehicles at key stops. (BART’s central computer system automates collection of on-time performance data.) On-time performance data is used by operators primarily as an internal management tool. When deteriorating on-time performance can be traced back to increasing roadway congestion, the data may be used to develop more realistic, revised schedules. San Francisco Muni publishes on-time performance data in its quarterly performance reports as required under Proposition E, passed by San Francisco voters in 1999.

Transit Ridership (pages 26-27)

This report uses transit boardings as a measure of ridership. A boarding refers to each time a passenger enters a transit vehicle or train station. One person may board multiple vehicles to complete a trip. Methods used to collect this ridership data include tracking transit fare receipts and hiring people to count passenger boardings. Transit operators report ridership for each fiscal year to the Federal Transit Administration for inclusion in the National Transit Database. MTC summarizes transit ridership and other operating statistics for Bay Area operators in its annual report, *Statistical Summary of Bay Area Transit Operators*, which covers a rolling five-year period.

Safety

Motor Vehicle Collisions and Motor Vehicle Collisions Involving Pedestrians or Cyclists (pages 30-33)

The California Highway Patrol maintains the most complete data on motor vehicle collisions, including those that involve pedestrians or cyclists. The database, called Statewide Integrated Traffic Records System, includes all collisions reported to local law enforcement as well as the Highway Patrol. The Highway Patrol publishes the series *Annual Report of Fatal and Injury Motor Vehicle Traffic Collisions*, which includes summary statistics by county and for the entire state. Data at a less aggregated level can be requested from the California Highway Patrol.

Transit Safety Statistics (pages 34-35)

This report uses the number of injuries and fatalities involving transit as a measure of transit safety. The statistics represent a wide range of incidents ranging from people who slip and fall while boarding a bus to those injured or killed in collisions with transit vehicles. The statistics include patrons, employees and other

individuals if they are injured or killed on transit property or by transit vehicles. Transit operators report injuries and fatalities to the Federal Transit Administration as part of the National Transit Database project. The National Transit Database also includes statistics on system security (robberies or vehicle thefts, for example). Security statistics for Bay Area transit operators may be included in future reports. Data on individual Bay Area transit operators and national statistics are available on the Web at www.ntdprogram.com/.

State of Repair

Freeway Pavement Conditions (pages 38-39)

The condition of freeway pavement is measured in terms of the International Roughness Index (IRI), an indicator of ride comfort. Caltrans surveys pavement condition using roving vehicles that measure the deviation from a smooth surface in inches per mile. A lower IRI indicates less deviation from a smooth surface, or better ride quality.

For the most rigid pavement surfaces — slabs of pavement connected by joints — IRI ratings of 212 or less are considered acceptable by Caltrans. For seamless-style pavement surfaces, IRI ratings of 224 or less fall within the acceptable range.

Local Roadway Pavement Conditions (pages 40-41)

Most Bay Area jurisdictions use MTC's Pavement Management System, or an equivalent system, to track conditions of streets and roads and develop cost-effective repair schedules. MTC's Pavement Management System measures pavement conditions according to a pavement condition index (PCI) that ranges from 0 to 100, where 100 is the best possible score. Surveyors record the type and severity of pavement distresses such as cracking, weathering and patching through physical inspections. This information is then entered into the Pavement Management System to calculate the PCI.

MTC staff periodically summarizes information on pavement conditions provided by local jurisdictions. MTC hopes to be able to update the pavement condition summary every two years. The characterization of pavement conditions in 2001 is based on the most recent data submitted to MTC by local jurisdictions. For those jurisdictions that had their last inspections done in 2001, the PCI scores were considered current. For those jurisdictions that had inspections done in previous years, MTC staff used Pavement Management System software to project PCI scores forward to 2001.

Transit Service Calls (pages 42-43)

A service call occurs any time transit service is disrupted due to the need to repair a vehicle or other system component, such as a switching line or power supply. Transit operators report total service calls to the Federal Transit Administration as part of the National Transit Database. Operators also report the miles of service provided annually (annual revenue service miles) as part of the National Transit Database. MTC used these data to calculate the total number of service calls per million miles of service provided by the seven largest bus and rail operators.

Airports and Seaports

Airports - Passenger and Cargo Volumes (pages 46-47)

Statistics on airport passengers are based on information supplied to the airports from the airline carriers' computer reservation systems. These numbers are in turn used to collect landing fees from the carriers and for planning efforts at the airports. Statistics on air cargo are reported by private carriers to the airports. Private carriers (e.g., Federal Express, UPS) submit tonnage reports to the airports for planning and billing purposes. Due to limited time, these data were assembled for 1997, 2000 and 2001 only. In the future, data will be assembled and analyzed for all years covered in the report.

Seaports - Marine Cargo Volumes (pages 48-49)

Private operators at the ports collect data on marine cargo. For bulk goods, tonnage is tracked and used by the ports to collect fees. For containers, fees are paid to the port based on the contents of the containers and the number of total containers is tracked for planning purposes. Due to limited time, these data were assembled for 1997, 2000 and 2001 only. In the future, data will be assembled and analyzed for all years covered in the report.

Appendix B:
**Congested Freeway Locations –
Morning and Evening
Commutes, 2001**

Morning Peak-Period Congested Locations, 2001 (Ordered by County and Route)

COUNTY	ROUTE	DIR.	DELAY (vehicle hours)	DURATION (AM)	LOCATION
ALA	24	E	1,270	6:30-9:45	Route 13 to Caldecott Tunnel
ALA	24	W	400	7:05-9:20	At Telegraph Avenue
ALA/CC	80	W	9,410	5:45-9:30	Route 4 to Bay Bridge metering lights
ALA	84	S	2,860	5:30-9:50	Newark to Dumbarton Bridge toll plaza
ALA	92	W	1,910	6:00-10:00	Clawiter to San Mateo-Hawyard Bridge toll plaza
ALA	238	N	290	5:45-9:05	I-580 to East 14th Street
ALA/CC	580	E	50	7:55-9:10	Central Avenue to I-80
ALA	580	W	540	6:00-7:45	At North Flynn
ALA	580	W	2,745	6:15-9:30	Vasco Road to Airway
ALA	580	W	175	6:45-9:15	At El Charro
ALA	580	W	250	7:10-9:30	Redwood Road to Route 238
ALA	580	W	150	7:35-8:55	Coolidge to Fruitvale and at Park Boulevard
ALA	580	W	800	6:00-9:10	Route 24 to I-80
ALA	680	N	130	7:50-9:00	At I-580 and at Alcosta Boulevard
ALA	680	S	8,510	5:55-10:45	At Bernal and Sunol Road to Route 262
ALA	880	N	2,920	5:45-9:35	1 mile north of 7th Street to Bay Bridge
ALA	880	N	690	7:25-9:15	At Fremont and north of Whipple to Route 92
ALA	880	N	160	7:35-8:30	At Route 238
ALA	880	N	200	7:50-9:05	Route 238 to Marina Boulevard
ALA	880	N	280	7:50-9:00	Hegenberger to High Street
ALA	880	S	1,220	6:25-9:00	Hesperian Boulevard to Route 92
ALA	880	S	1,090	6:20-8:55	North of Industrial and Whipple to Decoto Road
ALA	880	S	8,880	6:00-10:45	Thornton to Mowry and Stevenson to north of Dixon Landing
CC	4	W	2,400	5:30-9:00	Hillcrest Avenue to Railroad Avenue
CC	24	W	900	7:20-9:15	St. Stephens to Caldecott Tunnel
CC	24	W	220	7:35-9:05	I-680 to east of Pleasant Hill Road
CC	242	S	400	6:45-8:30	Concord Avenue to I-680
CC	580	W	490	6:25-8:55	Garrard Boulevard to Richmond-San Rafael Bridge toll plaza
CC	680	N	210	7:35-9:10	Sycamore to El Pintado
CC	680	S	2,010	6:55-9:35	Route 24 to Diablo Road
CC	680	S	900	6:35-8:40	Route 242 to Geary Road and at North Main

County abbreviations: ALA=Alameda; CC=Contra Costa; MRN=Marin; SCL=Santa Clara; SF=San Francisco; SM=San Mateo; SOL=Solano; SON=Sonoma

Morning Peak Period Congested Locations, 2001 (continued)

COUNTY	ROUTE	DIR.	DELAY (vehicle hours)	DURATION (AM)	LOCATION
CC	680	S	310	6:35-8:35	At Concord/Contra Costa Boulevard
CC	680	S	840	6:35-8:50	At Benicia-Martinez Bridge toll plaza and north of Arthur Road to Route 4
MRN/SF	101	S	470	6:15-9:30	Sausalito Lateral to County Line
MRN	101	S	100	7:35-9:10	South of I-580 and Lucky Drive
MRN	101	S	3,230	6:30-9:30	Rowland Boulevard to I-580
SCL	17	N	560	7:00-9:15	Hamilton Avenue to Camden Avenue and at I-280
SCL	85	N	290	6:15-9:00	At Bernal Road on-ramp
SCL	85	N	1,040	6:30-9:00	Almaden Expressway to Saratoga Avenue
SCL	85	N	180	7:45-9:00	North of Saratoga Avenue to De Anza Boulevard
SCL	85	N	1,120	6:45-9:45	I-280 to Fremont Avenue and at U.S. 101
SCL	87	N	100	8:45-10:00	Capitol Expressway to Almaden Expressway
SCL	101	N	1,700	5:30-9:30	East Dunne Avenue to Burnett Avenue overcrossing
SCL	101	N	140	7:30-8:45	At Tully Road
SCL	101	N	2,480	7:00-10:00	I-280 to Guadalupe Parkway
SCL	101	N	360	7:45-9:15	Route 237 to Route 85
SCL	101	S	120	8:00-9:00	Route 237 to Lawrence Expressway
SCL	101	S	30	8:15-9:15	At Ellis Street
SCL	237	E	610	7:30-9:30	Route 85 to Mathilda Avenue and at Lawrence Expressway
SCL	237	W	400	6:45-9:15	I-880 to Zanker Road
SCL	280	N	300	7:15-8:45	10th Street to Route 87
SCL	280	N	2,010	6:45-9:15	Southwest Expressway to I-880
SCL	280	N	90	7:30-8:45	Route 85 to 1 mile north of Foothill Expressway
SCL	680	N	490	7:30-9:00	Capitol Expressway to Mckee Road
SCL	680	S	90	7:30-8:00	At U.S. 101
SCL	880	N	770	7:00-10:00	Bascom Avenue to Brokaw Road
SF/ALA	80	W	440	7:40-9:25	At county line and Treasure Island to Fremont Street
SF	80	E	210	7:55-9:10	U.S. 101 to Sterling Street
SF/SM	101	S	300	7:40-9:15	Cesar Chavez to Harney Way
SF	101	N	250	7:15-9:00	Aleman Avenue to Cesar Chavez
SF	101	N	40	7:05-9:25	At I-80
SF/SM	280	N	440	7:10-8:40	Route 1 to San Jose Avenue
SF	280	N	260	7:10-9:35	At U.S. 101 and 6th Street to King Street

Morning Peak Period Congested Locations, 2001 (continued)

COUNTY	ROUTE	DIR.	DELAY (vehicle hours)	DURATION (AM)	LOCATION
SM	92	W	50	8:00-8:45	U.S. 101 to Alameda De Las Pulgas
SM	92	E	100	7:45-8:45	West Hillsdale Boulevard to Route 82
SM/SCL	101	S	1,430	6:45-9:30	Whipple Avenue to Route 85
SM	101	N	150	7:45-9:15	At Marsh Road
SM	101	S	1,550	7:00-10:00	Third Street to East Hillsdale Boulevard
SM	101	S	100	7:30-8:30	San Bruno Avenue to Millbrae Avenue
SM	101	S	190	7:30-9:00	Marina Boulevard to Grand Avenue
SM	101	N	40	8:00-8:30	De Anza to Broadway
SM	280	S	90	7:30-9:05	At Route 1
SM	280	S	420	7:15-9:00	Route 1 to Westborough Avenue
SM	280	S	60	7:30-8:15	At Cañada Road
SOL	37	W	70	7:15-9:00	At Skaggs Island
SOL	37	W	150	6:10-8:55	East of Skaggs Island and west of Mare Island interchange
SOL	80	W	360	6:15-7:45	Solano Avenue to Carquinez Bridge toll plaza
SOL	80	W	340	6:00-7:35	At West Texas Street and Route 12 to Suisun Valley Road
SOL	680	S	50	6:25-7:30	Industrial Way to Benicia-Martinez Bridge toll plaza
SOL	780	E	160	6:10-7:50	East Second Street to Benicia-Martinez Bridge toll plaza
SON	101	S	670	5:30-8:05	North of East Washington Street to north of Kastania Road
SON	101	S	70	7:25-9:05	South of West Serra Avenue to Truck Stop
SON	101	S	570	6:40-10:15	Hopper Avenue to Route 12 and at Hearn Avenue
SON	101	S	180	7:10-8:30	At Shiloh Road and Airport Boulevard to River Road
SON	101	N	440	7:00-9:00	Santa Rosa Avenue to north of College Avenue

Evening Peak-Period Congested Locations, 2001 (Ordered by County and Route)

COUNTY	ROUTE	DIR.	DELAY (vehicle hours)	DURATION (PM)	LOCATION
ALA	24	E	1,780	3:30-6:45	Claremont to Caldecott Tunnel
ALA/SF	80	E	1,410	2:55-6:30	At Sterling Street and at I-580
ALA	80	E	2,500	3:10-6:55	I-580 to Gilman Street
ALA/SF	80	W	1,250	4:55-6:55	Bay Bridge toll plaza to Fifth Street
ALA	84	N	160	3:25-6:15	Newark Boulevard to I-880
ALA	238	N	340	3:00-6:45	I-580 to East 14th Street
ALA	238	S	320	3:45-6:35	I-880 to Route 185
ALA	580	E	1,360	3:35-7:05	Airway Boulevard and Livermore Avenue to west of Route 84
ALA	580	E	5,030	2:55-6:40	Hopyard Road to west of El Charro Road
ALA	580	E	450	4:35-6:45	Route 24 to Coolidge Avenue
ALA	580	W	220	4:00-7:00	Strobridge to Route 238
ALA	680	N	1,370	3:15-6:15	At Scott Creek and at Route 262 to Washington
ALA	880	N	1,350	2:50-8:10	South of Fremont to Auto Mall Parkway
ALA	880	N	390	3:40-6:20	Stevenson and north of Route 84 to Decoto Road
ALA	880	N	2,120	3:00-6:50	Fremont to Tennyson Road
ALA	880	N	410	4:10-7:05	Route 92 to south of Hesperian Boulevard
ALA	880	N	230	3:20-4:55	South of High Street
ALA	880	S	370	3:30-6:05	Tennyson Road
ALA	880	S	120	4:45-6:15	At Hegenberger and at Marina Boulevard
CC	4	E	1,170	3:45-7:00	Route 242 to Port Chicago
CC	4	E	2,000	3:35-7:00	Bay Point to Loveridge Road
CC	4	E	430	3:25-7:20	East of Loveridge Road to "L" Street
CC	24	E	190	3:50-6:00	At Acalanes Road and at I-680
CC	24	W	1,340	3:15-7:30	West of Camino Pablo to Caldecott Tunnel
CC	80	E	580	3:50-6:15	Central Avenue to San Pablo Avenue
CC	80	E	280	4:05-6:10	El Portal Road to Route 4
CC	80	E	350	4:20-6:40	Route 4 to Cummings Skyway
CC	680	N	660	3:45-6:35	North of Bollinger Canyon Road to Sycamore Valley Road and El Cerro Boulevard to El Pintado Road
CC	680	N	500	3:55-6:00	Stone Valley Road to Treat Boulevard
CC	680	N	80	5:05-6:15	Burnett Avenue to Route 4
CC	680	N	1,580	3:20-6:50	Route 4 and Arthur to Benicia-Martinez Bridge toll plaza

County abbreviations: ALA=Alameda; CC=Contra Costa; MRN=Marin; SCL=Santa Clara; SF=San Francisco, SM=San Mateo; SOL=Solano; SON=Sonoma

Evening Peak Period Congested Locations, 2001 (continued)

COUNTY	ROUTE	DIR.	DELAY (vehicle hours)	DURATION (PM)	LOCATION
MRN/SF	101	S	450	3:50-7:00	South of Waldo Tunnel to south of county line
MRN	101	N	1,820	2:50-6:25	Seminary Drive to Mission Avenue
MRN	101	N	940	3:20-6:35	De Long Avenue to north of San Marin Drive
MRN	101	N	260	3:05-6:40	At Sanitary Road
MRN	580	W	660	2:25-6:55	At U.S. 101
SCL	17	S	40	4:45-6:30	North of Lark Avenue
SCL	85	S	100	5:00-6:15	At Route 87
SCL	85	S	630	4:00-7:00	Winchester Boulevard to Camden Avenue
SCL	85	S	470	4:30-7:45	I-280 to Saratoga Avenue
SCL	85	S	830	4:30-7:00	Evelyn Avenue to Fremont Avenue
SCL	87	S	1,820	3:45-7:30	I-280 to Curtner Avenue
SCL	101	S	1,730	3:40-7:45	Bernal Avenue to 1 mile north of Scheller Avenue
SCL	101	S	1,210	4:00-7:15	I-280/680 Interchange to Tully Road
SCL	101	S	4,100	3:00-7:00	Great America Parkway to 13th Street
SCL	101	N	110	5:30-7:00	At Great America Parkway
SCL/SM	101	N	1,550	3:45-7:15	Route 237 to Embarcadero Road
SCL	101	S	1,200	3:45-7:00	Embarcadero Road to Route 85
SCL	237	E	1,600	4:00-7:15	Zanker Road to I-880
SCL	237	W	50	5:15-6:15	Middlefield Road to Route 85
SCL	237	W	200	5:15-6:45	I-880 to Zanker Road
SCL	280	N	90	5:30-6:45	11th Street to Route 87
SCL	280	N	160	5:15-6:15	At I-880
SCL	280	S	900	4:15-6:30	Bascom Road to 11th Street
SCL	280	S	410	4:45-6:30	Lawrence Expressway to Winchester Boulevard
SCL	280	S	30	5:15-6:00	Magdalena Avenue to north of Foothill Expressway
SCL	680	S	200	4:45-6:00	Capitol Avenue to Berryessa Road
SCL	680	N	470	4:00-7:15	Calaveras Road to Scott Creek Road
SCL	880	S	470	5:00-7:00	U.S. 101 to I-280
SCL	880	S	1,610	3:30-7:30	Great Mall Parkway to Brokaw Road
SCL/ALA	880	N	4,000	3:20-7:00	U.S. 101 to Dixon Landing Road
SF	80	E	3,170	3:15-7:00	U.S. 101 to Sterling Street
SF	80	W	30	4:55-6:25	From 5th Street to U.S. 101

Evening Peak Period Congested Locations, 2001 (continued)

COUNTY	ROUTE	DIR.	DELAY (vehicle hours)	DURATION (PM)	LOCATION
SF	101	N	1,880	3:00-5:55	I-280 to I-80
SF	101	N	170	3:55-6:25	I-80 to Fell Street
SF	101	S	140	3:50-6:20	South Van Ness Avenue to I-80
SF	101	S	80	5:20-6:35	I-80 to I-280
SF	280	S	90	5:15-6:15	U.S. 101 to San Jose Avenue
SF	280	S	70	4:35-6:25	At Pennsylvania Avenue
SM	92	W	30	5:30-6:45	U.S. 101 to Alameda De Las Pulgas
SM/ALA	92	E	2,760	2:30-7:00	1.5 miles east of San Mateo-Hayward Bridge to I-880
SM	101	N	650	5:00-7:15	Marsh Road to Woodside Road
SM	101	N	1,740	4:00-7:45	Whipple Avenue to Ralston Avenue
SM	101	N	1,070	4:30-7:15	Route 92 to Third Avenue
SM	101	N	50	5:30-6:30	At Broadway
SM	101	S	460	5:00-6:45	Woodside Avenue to Willow Road
SM	101	S	30	4:00-4:30	North of Broadway
SM	101	N	250	5:15-7:00	E. Grand Avenue to Marina Boulevard
SM	280	N	450	5:30-6:45	Alpine Road to Woodside Road
SM	280	N	220	5:30-7:00	Route 92 to Bunker Hill Drive
SM	280	N	480	5:00-7:00	Crystal Springs Avenue to Westborough Boulevard
SM	380	W	40	5:00-6:00	Route 82 to I-280
SOL	37	E	50	4:35-6:15	At Route 121
SOL	80	E	610	3:15-6:20	Jameson Road (Route 12) to Suisun Valley Road
SOL	80	E	80	5:00-6:05	East of Magellan Road to Travis Boulevard
SOL	680	N	570	3:25-6:35	At I-80
SON	101	N	190	4:05-6:00	At Old Redwood Highway (Penngrove)
SON	101	N	770	2:40-6:30	Santa Rosa Avenue to Baker Avenue
SON	101	N	330	3:55-6:25	Route 12 to Steele Lane
SON	101	S	1,210	2:40-6:35	Hopper Avenue to Route 12

Appendix C:
**Pavement Condition of
Bay Area Jurisdictions, 2001**

Pavement Condition Index (PCI) for Bay Area Jurisdictions

2001 Average PCI	Jurisdiction	1997 PCI
Very Good		
86	Belvedere	NA
86	Los Altos	NA
85	Brentwood	NA
84	Oakley	NA
81	Windsor	NA
80	Contra Costa County (unincorporated)	64
80	City of Santa Clara	79
79	Alameda County (unincorporated)	73
79	American Canyon	NA
79	Cupertino	NA
79	Danville	72
79	Pleasant Hill	NA
78	Concord	NA
78	Pinole	NA
78	Sunnyvale	75
77	Burlingame	NA
77	Mountain View	78
76	City of Alameda	NA
76	Atherton	NA
76	Campbell	60
76	Gilroy	NA
76	Morgan Hill	NA
75	Dixon	66
75	San Ramon	78
Good		
74	Livermore	75
74	Newark	75
74	South San Francisco	NA
74	Vacaville	NA
73	Benicia	71
73	Brisbane	NA
73	Daly City	NA
73	Foster City	77
73	Los Altos Hills	58
73	Piedmont	NA
73	Portola Valley	NA

2001 Average PCI	Jurisdiction	1997 PCI
Good		
72	Corte Madera	NA
72	Fairfield	69
72	Fremont	74
72	Hercules	NA
72	Orinda	55
72	Rohnert Park	NA
71 ¹	San Rafael	NA
71	Antioch	NA
71	Clayton	NA
71	Milpitas	NA
71	Novato	NA
70	Dublin	NA
70	Emeryville	NA
70	Martinez	NA
70	Santa Rosa	64
70	City of Sonoma	NA
70	Yountville	NA
69	Cotati	NA
69	Pacifica	NA
69	Pittsburg	NA
69	Redwood City	61
69	Suisun City	NA
69	Tiburon	NA
69	Cloverdale	55
68	Hayward	68
68	Pleasanton	70
68	San Carlos	NA
68 ²	City and County of San Francisco	NA
68	Saratoga	NA
67	Colma	NA
67	Hillsborough	NA
67	Menlo Park	53
66	Belmont	NA
66	Berkeley	61
66	Mill Valley	65

Pavement Condition Index (PCI) for Bay Area Jurisdictions (continued)

2001 Average PCI	Jurisdiction	1997 PCI
Good		
65	Healdsburg	NA
65	Los Gatos	NA
65	Ross	NA
65	San Anselmo	NA
64	Albany	NA
64	San Mateo	59
64	Santa Clara County (unincorporated)	65
64	Sebastopol	NA
63	San Leandro	60
61	San Bruno	50
61	St. Helena	NA
61	Woodside	NA
60	Lafayette	NA
60	San Pablo	31
Fair		
59	East Palo Alto	NA
59	San Jose	NA
59	Vallejo	59
57	Marin County (unincorporated)	45
57	Solano County (unincorporated)	NA
56	Sausalito	62
55	Napa County (unincorporated)	NA
54	Calistoga	44
54	El Cerrito	55
54	Richmond	67
53 ¹	Larkspur	NA
53	City of Napa	66
53	San Mateo County (unincorporated)	NA
51	Petaluma	40
46	Sonoma County (unincorporated)	46
45	Fairfax	NA

2001 Average PCI	Jurisdiction	1997 PCI
Poor		
43	Half Moon Bay	NA
No Data		
NA	Millbrae	NA
NA	Monte Sereno	NA
NA	Moraga	NA
NA	Oakland	NA
NA	Palo Alto	NA
NA	Rio Vista	NA
NA	Union City	NA
NA	Walnut Creek	NA

Source: Metropolitan Transportation Commission

¹ Jurisdiction uses an alternate pavement management system in which scoring scale is comparable with PCI.

² Score has been correlated to the PCI scale from an alternate pavement management system.

2001 PCI scores based on inspections between 1998 and 2001 (see note on page 55).

NA = Not available

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